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REMARKS

The Office Action dated July 5, 2005, has been received and carefully reviewed. In the present response, claims 83-85 have been amended to correct an inadvertent typographical error in the dependencies of these claims. Favorable reconsideration and withdrawal of the rejections of the claims is respectfully requested, in view of the following remarks:

Starting on page 2 of the Office Action, claims 6-7, 25, 49, 50, 54-55, 64, 66-67, 76, and 78-81 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Yamazaki et al. (U.S. Patent No. 5,907,770).¹ This rejection is respectfully traversed.

As stated in MPEP §2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)." The rejection cannot stand because the Yamazaki et al. patent fails to describe each and every limitation recited in the pending independent claims, and thus also in the dependent claims.

For instance, the Yamazaki et al. reference fails to describe the claimed steps of "irradiating a semiconductor film with a laser light to improve crystallinity of the semiconductor film wherein a warp is created in the semiconductor film due to the irradiating with the laser light," and "heating the semiconductor film in order to decrease the warp," as recited in the context of claim 78. Similar distinctions are recited in claims 6 and 7. For example, claims 6 and 7 recite *inter alia* the steps of "irradiating the first crystalline semiconductor film with a laser light to form a second crystalline semiconductor film having a warp," and "second heating the second crystalline semiconductor film at a higher temperature than the first heating step to lessen the warp." It is respectfully submitted that the Yamazaki et al. patent does not teach or suggest such features.

In setting forth the rejection, the Examiner refers to column 5, lines 34-48 and column 24, lines 60-63, and asserts that the Yamazaki et al. patent teaches, "Irradiating a semiconductor film (103) with a [high power] laser light to improve crystallinity of the semiconductor film wherein a warp is created due to the irradiating with the laser light." It is

¹ Applicants note that the grounds of rejection includes claims 66, 67 and 76 under Section 102, but these claims depend from independent claim 8, which was rejected only under Section 103.

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respectfully submitted, however, that in the processes described in the cited parts of Yamazaki et al., the substrate is warped *prior to irradiating the laser beam onto the substrate*. For example, in one embodiment of Yamazaki et al., laser irradiation is performed after flattening the substrate (see, column 5, lines 40-43). In another embodiment, irradiation appears to be performed *on a warped substrate* that has been fixed to a U-shaped convex stage (column 23, line 51 to column 24, line 2) and flattening is performed after irradiating the fixed substrate (column 24, lines 57-59). Hence, the Yamazaki et al. patent appears to describe irradiating a substrate with a laser beam after flattening the substrate or after the substrate has been fixedly warped. However, Yamazaki et al. lacks any description of the claimed subject matter relating to irradiating a semiconductor film with a laser beam to form a semiconductor film having a warp beforehand and heating the crystalline semiconductor film to lessen the warp in the crystalline semiconductor film formed by the irradiating step.

In contrast to the Yamazaki et al. patent, the claimed invention is directed to lessening the warp in a semiconductor film formed by laser beam (light) irradiation. In order to lessen this warp, Applicants' invention heats the semiconductor film that was irradiated with the laser light (e.g., see page 6, lines 6-15 of the specification). Accordingly, the present invention is technically and essentially different from the Yamazaki et al. invention.

With further regard to claims 6 and 7, it is respectfully submitted that the Yamazaki et al. patent does not describe the recited step "second heating the second crystalline semiconductor film at a higher temperature than the first heating step to lessen the warp." Moreover, the Examiner does not address this claimed feature. Instead, the Examiner refers to column 24, lines 40-67 and merely asserts that Yamazaki et al. describes a "low power" heating process (see, lines 8-9 on page 3 of the Action). The undersigned has carefully reviewed the parts of Yamazaki et al. relied upon and submits that there is no mention of a "second heating the second crystalline semiconductor film at a higher temperature than the first heating step to lessen the warp." If the undersigned has overlooked a description of this claimed feature in the cited parts of Yamazaki et al. patent, it is respectfully requested that the Examiner point out, with particularity to specific lines and/or reference numbers, where it is allegedly described. Absent such showing, it is respectfully submitted that the Examiner has failed to establish a *prima facie* case of anticipation with respect to claims 6 and 7 for these additional reasons.

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For at least these reasons, it is respectfully submitted that the Yamazaki et al. patent does not describe the combinations of features set forth in independent claims 6, 7 and 78. Accordingly, the rejection under 35 U.S.C. 102(b) is improper should be withdrawn.

Claims 25, 49, 50, 54, 55, 64, and 79-81 depend from one of claims 6, 7 and 78, and are therefore allowable for at least for the above reasons. While the dependent claims also recite combinations including additional features not described in the Yamazaki et al. patent, because the distinctions pointed out above with respect to independent claims 6, 7 and 78 are clear, it is not believed a detailed discussion of separately patentable subject matter set forth in these claims is necessary at this time. It is respectfully submitted, however, that such distinctions exist.

On pages 4-7, the Action also includes a rejection of claims 8, 17-22, 25, 51-53, 56-63, 65, 68-75, 77 and 82-85 under 35 U.S.C. 103(a) as allegedly being unpatentable over the Yamazaki et al. patent in view of Joo et al. (U.S. Patent No. 6,197,623). This rejection is respectfully traversed.

One of the purposes of the present inventions is to lessen the warp in a semiconductor film formed by laser beam (light) irradiation. In order to lessen the warp, the present invention includes a process of heating the semiconductor film that was irradiated with a laser light (e.g., see claims 6-8, 78, 82 and page 6, lines 6-15 of the specification). These concepts are brought out in each of independent claims 8 and 82. For example, claim 8 recites, among other features, the steps of "irradiating the first crystalline semiconductor film with a laser light to form a second crystalline semiconductor film having a warp" and "second heating the crystalline semiconductor island at a higher temperature than the first heating step to lessen the warp." Claim 82 recites *inter alia* the steps of irradiating a semiconductor film with a laser light to improve crystallinity of the semiconductor film wherein a warp is created in the semiconductor film due to the irradiating with the laser light," and "heating the semiconductor film in order to decrease the warp after the etching step." For reasons analogous to those provided above, it is respectfully submitted that the Yamazaki et al. patent does not disclose these features. It is also submitted that because the Yamazaki et al. patent does not teach or suggest the underlying concepts of the present invention, it also does not suggest such claimed subject matter.

In contrast, the purpose of Yamazaki is to flatten the substrate by thermally annealing

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and cooling with a base 602 (stage) having a convex curved surface in order to irradiate a laser beam uniformly to the substrate. (See col. 5, lines 40-59 and FIGS. 6A to 6C) As pointed out above, Yamazaki attempts to achieve this purpose by way of entirely different processes, which involves irradiating a laser beam on a pre-warped substrate or on a substrate that has already been flattened. However, as pointed out above, Yamazaki et al. lacks any teaching or suggestion of the claimed features relating to irradiating a semiconductor film with a laser beam beforehand and heating the crystalline semiconductor film to lessen the warp in the crystalline semiconductor film formed by the irradiating step. Hence, Applicants submit claims 8 and 82 set forth subject matter not taught or suggested in Yamazaki et al.

It is respectfully submitted that the Joo et al. patent, which is relied upon for allegedly teaching thermal annealing using a halogen lamp and a furnace, does not teach or suggest anything whatsoever concerning lessening warp in a semiconductor film formed by laser beam (light) irradiation, much less the claimed steps of "second heating the crystalline semiconductor island at a higher temperature than the first heating step to lessen the warp" and "heating the semiconductor film in order to decrease the warp after the etching step" as respectively recited in claims 8 and 82. Hence, it is respectfully submitted that any combination of this document with Yamazaki et al. would not have led one of ordinary skill in the art to the claimed invention.

Furthermore, the Examiner's reliance on *Ex parte Rubin* and *In re Burhans* does not remedy the shortcomings of the Yamazaki et al. and Joo et al. patents. For instance, even if one were to consider, for the sake of argument, that one of ordinary skill in the art would have been motivated to try forming a semiconductor island before the flattening step described in Yamazaki et al., such hypothetical modification would not have resulted methods set forth in the present claims.

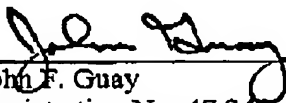
The remaining claims depend from one of independent claims 6-8, 78 and 82, and are therefore allowable for the reasons advanced above, and for the additional features recited. Applicants reserve the right to argue distinctions set forth in these dependent claims at a future time, if necessary.

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From the foregoing, it is respectfully requested that all rejections be withdrawn and the application passed to issue without further delay.

Respectfully submitted,



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